



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,137	12/01/2005	Yoshinori Suzuki	101621-16	4375
27387	7590	12/16/2008		
NORRIS, MCLAUGHLIN & MARCUS, P.A.			EXAMINER	
875 THIRD AVE			THOMPSON, CAMIE S	
18TH FLOOR				
NEW YORK, NY 10022			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			12/16/2008 PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/543,137

Applicant(s)

SUZUKI ET AL.

Examiner

Camie S. Thompson

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed 10/31/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6, 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2008 has been entered.
2. Applicant's amendment and accompanying remarks filed October 31, 2008 are acknowledged.
3. Examiner acknowledges amended claims 1, 6, 11 and 12.
4. Examiner acknowledges cancelled claims 2 and 7.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 is rendered indefinite because it depends upon a cancelled claim – claim 2.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3-6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oosedo et al., U.S. Pre Grant Publication 2002/0007022 in view of Sakajiri et al., U.S. Pre Grant Publication 2005/0271874.

Oosedo discloses a carbon fiber reinforced resin composite comprising a carbon reinforcing fiber impregnated in a resin composition (see paragraph 0015). The reference also discloses that the composition comprises an epoxy group containing vinyl ester resin (see paragraphs 0102-0103). The reference also discloses a curing agent for the epoxy resin wherein the curing agent is an imidazole as per instant claims 3 and 8 (see paragraph 0042). It is disclosed in paragraph 0127 that the composition comprises an organic peroxide as a curing agent. Paragraph 0124 discloses that the composition comprises a polymerizable monomer. Paragraph 0104 of the reference discloses that the polymerizable unsaturated bond for the resin is an acrylic acid or methacrylic acid as per instant claims 4 and 9. Paragraph 0217 of the reference discloses that the composition is produced by kneading the resin mixture as per instant claims 11 and 12. The reference claims disclose that the epoxy group has an equivalent of 0.5 to 5 parts by weight and that the ethylenically unsaturated group has an equivalent of .5 to 20 parts by weight. The reference does not disclose that the carbon fiber is impregnated with a sizing agent in the amount of 03 to 5% by mass comprising a vinyl ester resin. Sakajiri discloses a sizing agent for

a carbon fiber strand for a carbon fiber reinforced resin composite material. Sakajiri discloses in paragraph 0037 that the sizing agent can comprise vinyl ester resin present in the amount of 0.3 to 5% by mass (see paragraph 0016). Oosedo discloses in the claims interlaminar shear strength of 77.0 MPa. Sakajiri discloses in table 1 interlaminar shear strength greater than 77.0 MPa when using a sizing agent on the carbon fiber strand. A sizing agent affects the adhesion of the carbon fibers and the matrix. Therefore, it would have been obvious to impregnate the carbon fiber strand in the Oosedo reference with a sizing agent as disclosed in the Sakajiri reference in order to have a carbon fiber reinforced resin composite that has superior interlaminar strength.

Response to Arguments

9. Applicant's arguments filed October 31, 2008 have been fully considered but they are not persuasive. Applicant argues that neither Oosedo nor Sakajiri discloses a resin mixture having a curing agent comprising an organic peroxide and a curing agent for an epoxy resin. Oosedo discloses in paragraph 0042 that the epoxy resin that is used in the resin composition is used with a curing agent such as imidazole. It is disclosed in paragraph 0126 of the Oosedo reference that an organic peroxide is used in the resin composition. Applicant also argues that the Oosedo reference does not disclose an epoxy group containing vinyl ester resin. It is disclosed in paragraph 0102 a vinyl ester resin with a plurality of epoxy groups. Applicant argues that the Sakajiri reference does not remedy the deficiencies of Oosedo. Oosedo comprises all of the components of the present claims except for the sizing agent impregnated onto the carbon fiber strand. Both Oosedo and Sakajiri discuss the interlaminar strength of the carbon fiber strand for

carbon fiber reinforced composites. Sakajiri discloses a higher interlaminar strength due to a sizing agent (vinyl ester - paragraph 0037 of Sakajiri) impregnated onto the carbon fiber strand. Oosedo and Sakajiri are analogous art. The introduction of a sizing agent increases the interlaminar strength of the carbon fiber reinforced composite. Therefore, the combination of Oosedo and Sakajiri is not without motivation. Applicant provides data regarding wettability, bending strength and impregnability. Oosedo provides the same resin composition of the present claims. Additionally, applicant does not claim wettability, bending strength or impregnability data. The rejection is maintained.

Conclusion

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano, can be reached at (571) 272-1515. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 1794

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or would like access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or 571-272-1000.

Camie S Thompson/CST/
Examiner, Art Unit 1794

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794